

Amendment
Serial No. 09/314,262
Page 3

REMARKS

In view of the following discussion, the applicant's submit that none of the claims now pending in the application are obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants also submit that all of these claims now satisfy the requirements of 35 U. S. C. § 112. Thus, the applicants believe that all of these claims are in allowable form.

Rejections

A. 35 U. S. C. § 112

1. Claim 5 rejected under 35 U. S. C. § 112, first paragraph

Claim 5 is rejected under 35 U. S. C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention. In particular, the Examiner states that claim 5 introduces new matter, since this claim recites anisotropic reinforcing agents and the mineral particles recited in the Markush group are isotropic reinforcing agents. Applicants have amended claim 5 to delete the mineral particles from the Markush group.

In view of this amendment, the basis for the examiner's rejection of claim 5 pursuant to 35 U. S. C. § 112, first paragraph, has been removed. Therefore it is respectfully requested that this rejection be withdrawn.

Amendment
Serial No. 09/314,262
Page 4

B. 35 U. S. C. § 103

1. Claims 1-3, 5, 7-9, 11-17 and 19 unpatentable over Kuromiya et al. in view of Landin et al.

Claims 1-3, 5, 7-9, 11-17 and 19 are rejected under 35 U. S. C. § 103(a) as being unpatentable over Kuromiya et al. (U.S. Patent No. 5,585,989 issued December 17, 1996) in view of Landin et al. (Re. U.S. Patent No. Re 36, 806 reissued August 1, 2000). Applicants submit that these claims are not rendered obvious by the combination of these references.

Applicant's invention as recited in amended claims 1-3, 5, 7-9, 11-17 and 19 is directed to a substrate for use in a data storage system (see the specification, at page 3, lines 19-24). In particular, applicant's invention as recited in amended claim 1 includes the following features:

"A substrate for use in a data storage system, comprising:
at least one plastic composite material exhibiting a modulus
of about 350 kpsi or greater;
wherein said plastic composite material is filled with
viscoelastic damping particles and anisotropic reinforcing agents."

In applicant's amended claim 1, a substrate for use in a data storage disk system is described (see the specification at page 3, lines 19-20). The substrate comprises at least one plastic composite material exhibiting a modulus of about 350 kpsi or greater, wherein the plastic composite material is filled with viscoelastic damping particles and anisotropic reinforcing agents (see the specification at page 4, lines 1-3).

Kuromiya et al. discloses magnetic disk substrates formed of thermoplastic norborene resins (see Kuromiya et al. at column 1, lines 5-6).

Amendment
Serial No. 09/314,262
Page 5

Spherical-shaped filler particles are added to the thermoplastic norborene resins to provide a high modulus of elasticity (see Kuromiya et al. at column 5, lines 37-38 and 58-59).

Kuromiya et al. does not describe or suggest applicant's invention recited in amended claims 1-3, 5, 7-9, 11-17 and 19, in which the substrate comprises at least one plastic composite material exhibiting a modulus of about 350 kpsi or greater, wherein the plastic composite material is filled with viscoelastic damping particles and anisotropic reinforcing agents. Rather, Kuromiya et al. only teaches the use of spherical-shaped filler particles to increase the modulus of thermoplastic norborene resins. Furthermore, Kuromiya et al. specifies that "the filler material have a spherical shape and the closer it is to the perfect round shape the more preferable" (see Kuromiya et al. at column 5, lines 58-60)." Clearly, Kuromiya teaches away from applicant's invention in which the plastic composite material comprises viscoelastic damping particles and anisotropic reinforcing agents. Thus, applicant's invention, as recited in amended claims 1-3, 5, 7-9, 11-17 and 19, is patentable over Kuromiya et al.

Landin et al. discloses a method for damping a rotatable storage article (see Landin et al. at column 1, lines 10-12). The rotatable storage article is damped with one or more internal damping layers (see Landin et al. at column 5, lines 2-3). The one or more internal damping layers are positioned between the structural material of the rotatable storage article (see Landin et al. at column 5, lines 4-10). The one or more internal damping layers are constructed of a viscoelastic rubber, a thermoplastic material, or a thermosetting resin (see Landin et al. at column 6, line 42 to column 7, line 17). Fibrous or particulate material may be added to the damping material to further improve the damping properties thereof (see Landin et al. at column 7, lines 23-48).

Landin et al. does not describe or suggest applicant's invention recited in amended claims 1-3, 5, 7-9, 11-17 and 19, in which the substrate comprises at least one plastic composite material exhibiting a modulus of about 350 kpsi or

Amendment
Serial No. 09/314,262
Page 6

greater, wherein the plastic composite material is filled with viscoelastic damping particles and anisotropic reinforcing agents. Rather, Landin et al. teaches a damping layer comprising a non-rigid viscoelastic rubber or resin matrix, into which fibrous or particulate material may be added to improve damping further. In other words, Landin et al. does not teach filling a rigid plastic composite material with viscoelastic particles (see the specification at page 4, lines 8-16), but rather teaches the use of a non-rigid viscoelastic layer that includes fibrous or particulate material for improved damping. Thus, applicant's invention, as recited in amended claims 1-3, 5, 7-9, 11-17 and 19, is patentable over Landin et al.

Since Kuromiya et al. only teaches the use of spherical-shaped filler particles in thermoplastic norborene resins, and Landin et al. teaches the use of damping layers that are constructed of a non-rigid viscoelastic rubber or resin that may be filled with fibrous or particulate material, the combination of these references does not describe or suggest applicant's invention. In particular, applicant's invention as recited in amended claims 1-3, 5, 7-9, 11-17 and 19, in which the substrate comprises at least one plastic composite material exhibiting a modulus of about 350 kpsi or greater, wherein the plastic composite material is filled with viscoelastic damping particles and anisotropic reinforcing agents. Thus, applicant's invention, as recited in amended claims 1-3, 5, 7-9, 11-17 and 19, is patentable over the combination of these references.

Conclusion

Thus, the applicants submit that none of the claims, presently in the application, are obvious under the provisions of 35 U. S. C. § 103. Furthermore, the applicants also submit that all of these claims now satisfy the requirements of 35 U. S. C. § 112. Consequently, the applicants believe that all of these claims are presently in condition for allowance. Accordingly, the applicants earnestly solicit reconsideration of this application and its swift passage to issue.

Amendment
Serial No. 09/314,262
Page 7

If, however, the Examiner believes that any unresolved issues still exist in any of these claims that require a continuance of the adverse first action therefor, it is requested that the Examiner telephone Mr. James Sheridan, at (650) 320-0000, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

12/13/01

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Allyson M. DeVesty
Type or print name of person signing certification

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Signature

Appendix I
Serial No. 09/314,262
Page 1

Marked-Up Claims

1. (Twice Amended) A substrate for use in a data storage system, comprising:
 - at least one plastic composite material exhibiting a modulus of about 350 kpsi or greater;
 - wherein said plastic composite material is filled with viscoelastic damping particles[,] and anisotropic reinforcing agents[, or combinations thereof].
5. (Twice Amended) The substrate of claim 1 wherein said anisotropic reinforcing agents are selected from carbon fibers, glass fibers, [mineral particles] and any combinations thereof.
14. (Twice Amended) A substrate for use in a data storage system, comprising:
 - at least one core layer made of a plastic or plastic composite material; and
 - at least one skin layer made of a plastic or plastic composite material, and formed atop at least one surface of said core layer, wherein at least one of said core or skin layers exhibit a modulus of 350 kpsi or greater, and wherein the plastic or plastic composite material is filled with viscoelastic damping particles[,] and anisotropic reinforcing agents[, or combinations thereof].
17. (Twice Amended) The substrate of claim 16 wherein said anisotropic reinforcing agent is selected from carbon fibers, glass fibers, [mineral particles] and any combinations thereof.
19. (Twice Amended) An apparatus, comprising:
 - a disk drive spindle motor; and

Appendix I
Serial No. 09/314,262
Page 2

at least one data storage disk mounted on said disk drive spindle wherein said storage disk comprises at least one plastic composite material exhibiting a modulus of about 350 kpsi or greater, and wherein said plastic composite material is filled with viscoelastic damping particles[,] and anisotropic reinforcing agents[, or combinations thereof].